

WHAT IS CLAIMED IS:

1. A method of generating electricity which comprises:
 - a) providing a gas stream that contains a source of hydrogen atom containing compounds;
 - b) applying heat to the gas stream at a rapid rate sufficient to:
 - i) produce hydrogen ions and free electrons from the source of hydrogen atoms;
 - ii) transform the produced hydrogen ions into protons; and
 - iii) induce a sustained chain reaction, including nuclear reactions; and
 - c) collecting the free electrons as a source of electricity.
2. A method of generating electricity according to claim 1, further comprising: terminating the application of heat to the gas stream after the sustained chain reaction, including nuclear reactions are induced; and allowing the sustained chain reaction, including nuclear reactions to continue in reactive species of the gas stream.
3. A method of generating electricity according to claim 1, wherein the nuclear reactions include nuclear fusion.

4. A method of generating electricity according to claim 1, wherein the gas stream comprises one of air and a flue gas.

5. A method of generating electricity according to claim 1, wherein the rapid heating performed in step a) is performed by using at least one of a flame generator, a laser beam, an electric arc and a microwave generator.

6. A method of generating electricity according to claim 1, further comprising the step of adding chemical reactant species into the gas stream and collecting a chemical reaction product produced from the added chemical reactant species.

7. A method of generating electricity according to claim 1, further comprising recovering heat produced from the sustained chain reaction.

8. A method of generating electricity according to claim 1, wherein the step of applying heat to the gas stream at a rapid rate produces protons from the source of hydrogen atoms, and the method further comprises reacting the collected free electrons with the protons away from an area where the chain reaction occurs.

9. A method of generating electricity according to claim 8 further comprises cooling the gas stream to facilitate reacting the collected free electrons with the protons.

10. A nuclear reactor that produces electricity, which nuclear reactor comprises: a chamber having an upstream side and a downstream side; a gas inlet at the upstream side; a gas outlet at the downstream side; means for flowing a stream of gas through the chamber from the upstream side to the downstream side; means for heating the gas stream flowing through said chamber at a sufficient rate to cause components of said stream of gas to undergo nuclear reactions and produce free electrons; and a conductive collector for collecting and removing freed electrons from the reactor.

11. A nuclear reactor that produces electricity according to claim 10, wherein the means for heating the gas stream flowing through said chamber comprises a first means and a second means for heating the gas stream with the first means for heating the gas stream being upstream of the second means for heating the gas stream.

12. A nuclear reactor that produces electricity according to claim 10, further including means to re-introduce the removed electrons into the reactor downstream of the means for heating the gas stream.

13. A nuclear reactor that produces electricity according to claim 12, further including means for cooling the gas stream which means for cooling is downstream of the means to re-introduce the removed electrons into the reactor.

14. A nuclear reactor that produces electricity according to claim 10, further including a heat exchanger for recovering heat from the reactor, the heat exchanger being located downstream of the means to heat the gas stream

15. A nuclear reactor that produces electricity according to claim 10, wherein the means to heat the gas stream flowing through the chamber comprises at least one of a flame generator, a laser beam, an electric arc and a microwave generator.

16. A nuclear reactor that produces electricity according to claim 11, wherein both the first and second means to heat the gas flowing through the chamber comprises flame generators which direct flames toward each other.

17. A nuclear reactor that produces electricity according to claim 10, the chamber includes a heat reservoir near at least one of the upstream side and the downstream side.

18. A nuclear reactor that produces electricity according to claim 10, further comprising means to inject a chemical species for increasing nuclear reaction activities into the stream of gas flowing through the chamber.

19. A nuclear fuel cell that comprises: a chamber having an upstream side and a downstream side; a gas inlet at the upstream side; a gas outlet at the downstream side; means for flowing a stream of gas through the chamber from the upstream side to the

downstream side; means for heating the gas stream flowing through said chamber at a sufficient rate to cause components of said stream of gas to undergo nuclear reactions and protons and free electrons; and means for cooling a portion of reactor downstream of the means for heating the gas stream so as to recombine electrons and protons to form hydrogen.

20. The combination of a nuclear fuel cell according to claim 19, in an internal combustible engine vehicle wherein the hydrogen is used as a fuel in internal combustible engine.